ABSTRACT

The present invention relates to an adaptive frequency hopping apparatus in a wireless personal area network (WPAN) system, wherein predetermined packets of data can be correctly transmitted by estimating the channel qualities of operating bands in advance and transmitting the packets through a proper band.

The adaptive frequency hopping apparatus according to the present invention comprises a frequency table for monitoring each channel quality and storing and outputting information on each channel quality accumulated therein, a frequency hopping transceiver for generating and outputting a frequency pattern in accordance with predetermined rules, a link controller for generating an asynchronous connectionless (ACL) link in accordance with output signals of the frequency table and the frequency hopping transceiver and controlling selection of an operating mode between a channel avoidance scheme and a channel selection scheme, a packet handler for generating packet data by integrating a synchronous connection oriented (SCO) link and the ACL link inputted thereinto, a gaussian frequency shift keying (GFSK) modulator for performing GFSK modulation for signals outputted from the packet handler, a mode selector for selecting the operating mode between the channel avoidance scheme and the channel selection scheme in accordance with output signals of the frequency hopping transceiver and the link controller, a frequency synthesizer for synthesizing frequencies in accordance with output signals of the mode selector, a first multiplier for multiplying signals from outputted from the frequency synthesizer and the GFSK modulator and for outputting the multiplied signals as transmission signals, a second multiplier for multiplying the output signals of the frequency synthesizer by received signals, an RSSI detector for detecting a RSSI from output signals of the second multiplier, a GFSK demodulator for performing GFSK demodulation for the output signals of the second multiplier, a packet handler for restoring packet-type data from output signals of the GFSK demodulator, and a channel quality detector for estimating the channel quality by using the output signals of the RSSI detector and the packet handler, and storing it in the frequency table.